What is claimed is:

1. In a method for reducing pollution components with a chemical during the operation of a burner in which a fuel is burned to produce a combustion process having a flame that is anchored to a location in front of the burner and wherein a combustion region is produced with a first zone in front of the burner and a distal second zone that is aft of the first zone, with the first zone being normally characterized by high temperatures and/or a stoichiometric ratio that tends to de-activate a chemical introduced to reduce pollution components produced from the combustion process while the distal second zone has temperatures and a stoichiometric ratio that are favorable to the effectiveness of said chemical; the improvement comprising the steps of:

controlling the peak temperature of the first combustion zone to a level at which the chemical traveling through the first zone towards the second distal zone does not tend to deteriorate; and

injecting the chemical through the first zone, with the chemical being in a condition in which the chemical is capable of surviving conditions in said first zone for a sufficient time interval to transit the first zone without significant deactivation of the chemical while being well mixed throughout the first zone before reaching the second distal zone, with chemical portions that reach the second distal zone being of sufficient quantity to reduce pollution components in said distal second zone.

2. The method as claimed in claim 1 wherein said chemical is characterized so that it survives peak flame temperatures encountered in said first zone with a significant amount of reactive chemical reaching said second distal zone.

3. The method as claimed in claim 1 wherein said chemical is incorporated within a sacrificial fluid selected to preserve said chemical below its oxidizing and thermal decomposition limits.

4. The method as claimed in claim 3 wherein said chemical is encapsulated within a refractory material.

5. The method as claimed in claim 3 wherein said chemical is encapsulated within a solid shell.

6. The method as claimed in claim 3 wherein said chemical is within an aqueous medium.

7. The method as claimed in claim 3 wherein said chemical is within an oil medium.

8. The method as claimed in claim 3 wherein said chemical is in a liquid suspension.

9. In a method for reducing pollution components during the operation of a burner in which a fuel is burned to produce a combustion process having a flame that is anchored to a location in front of the burner and wherein a well mixed combustion region is produced with a first zone in front of the burner and a distal second zone that is aft of the first zone, with the first zone being characterized by high temperatures and/or a stoichiometric ratio that tend to de-activate a chemical introduced to reduce pollution components produced from the combustion process while the distal second zone has temperatures and a stoichiometric ratio that are favorable to the effectiveness of said chemical, the improvement comprising the steps of:

providing a chemical material capable of surviving conditions in said first zone for a sufficient time interval to enable the chemical to reach the distal second zone; and

introducing said chemical into the combustion process at a location which enhances its mixture throughout the first zone before reaching the distal second zone, while surviving passage through said first zone in a sufficiently effective amount to reduce said pollution components in said distal second zone.

10. The improved method as claimed in claim 9 and further including the step of:

injecting said chemical into a substoichiometric portion of said first zone.

11. The improved method as claimed in claim 9 wherein said chemical is selected to reduce NOx components in said distal second zone.

12. In a method for reducing NOx components during the operation of a burner in which a fuel is burned to produce a combustion process having a flame that is anchored to a location in front of the burner and wherein a well mixed combustion region is produced with a distal zone that has temperatures and a stoichiometric ratio that are favorable to the effectiveness of said chemical, the improvement comprising the step of:

injecting a chemical through a substoichiometric region having a peak temperature that is below a thermal deterioration limit of the chemical so as to enable the chemical to reach the distal zone for NOx reduction therein.

13 The NOx reducing method as claimed in claim 12 and further including the step of:

forming a said substoichiometric region through a burner zone having a peak flame temperature that exceeds the thermal deterioration temperature of the chemical.

14 The NOx reducing method as claimed in claim 13 wherein said step of forming said substoichiometric region comprises the step of injecting a fluid into said burner zone and wherein the evaporation of the fluid causes said substoichiometric region to form.

15 The NOx reducing method as claimed in claim 13 wherein said substoichiometric forming step comprises the step of injecting a gas stream through said burner zone, with the gas selected to reduce an oxidizing environment within the burner zone to form said substoichiometric region.

16. A method for reducing a pollutant produced during a combustion process comprising: injecting a chemical, having a thermal deterioration limit, into a substoichiometric zone of a combustion process wherein the peak flame temperature of that zone is below said thermal deterioration limit of the injected chemical.

17. The method for reducing a pollutant produced during a combustion process as set forth in claim 16 and further including the step of injecting an oxidizing agent at a sufficiently slow enough rate into a region of the combustion zone so as to produce said substoichiometric zone and prevent deterioration of the injected chemical from thermal and oxidizing conditions.

18. The method for reducing a pollutant produced during a combustion process as set forth in claim 17 in which the injected chemical is enveloped by a stream formed of a protective agent.

19. The method of reducing a pollutant as set forth in claim 16 wherein the step of injecting the chemical further comprises injecting the chemical into a flame envelope of the combustion process where combustion turbulence mixes the injected chemical thoroughly with byproducts of combustion.

20. The method of reducing a pollutant as set forth in claim 17 wherein a fuel stream is directed into said flame envelope and said step of injecting chemical injects said chemical so that it is substantially enveloped by the fuel stream.

21. A method for reducing a pollutant produced during a combustion process comprising the step of: injecting a pollutant reducing chemical into a substoichiometric zone of a combustion process wherein said zone has insufficient oxidizing agents to cause a reactive destruction of the injected chemical so as to enable said injected chemical to reduce said pollutants in a combustion zone located downstream of the substoichiometric zone.

22. The method of reducing a pollutant as set forth in claim 21 in which a fuel stream is injected into the combustion process at a slow enough rate to prevent thermal deterioration of the injected chemical.

23. The method for reducing a pollutant produced during a combustion process as set forth in claim 22 and further including the step of injecting oxidizing agents at a sufficiently slow enough rate into a region of the combustion zone so as to form said substoïchiometric zone and prevent deterioration of the injected chemical from thermal and oxidizing conditions.

24. The method for reducing a pollutant as set forth in claim 22 wherein said injecting step further comprises injecting said chemical near a core axis of a flame envelope in the combustion process so that combustion turbulence can mix the injected chemical thoroughly with byproducts of combustion.

25. The method for reducing a pollutant as set forth in claim 22 wherein a fuel stream is directed into said flame envelope and said step of injecting chemical injects said chemical so that it is are substantially enveloped by the fuel stream.

26. The method for reducing a pollutant as set forth in claim 22 in which the injected chemical reduces SOx emissions.

27. The method for reducing a pollutant as set forth in claim 22 in which the injected chemical reduces NOx emissions.

28. The method for reducing a pollutant as set forth in claim 22 in which the injected chemical reduces mercury and heavy metal emissions.

29. The method for reducing a pollutant as set forth in claim 28 in which the injected chemical controls vanadium type deterioration reactions.

30. The method for reducing a pollutant as set forth in claim 22 in which the injected chemical controls sulfur type deterioration reactions.

31. The method for reducing a pollutant as set forth in claim 22 in which the injected chemical controls sodium type reactions.